

2. GEOPHYSICAL INSTITUTE

of the

1. UNIVERSITY OF ALASKA UNIV., COLLEGE

AM 816139

3. INVESTIGATION OF AURORAL ZONE IONOSPHERIC FORWARD SCATTER

4. Progress Report No. 4,

~~covering the period~~

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I. INTRODUCTION

The work under this contract is directed towards the investigation of the causes of large enhancements on ionospheric forward scatter signals. A field site has been established at the mid-point of an ionospheric forward scatter path between Point Barrow and Anchorage, Alaska. The mid-point is located just south of the auroral zone at a remote native village. An ionosonde, a riometer, two all-sky cameras and a magnetometer have been installed at the site and operation of these equipments for the winter period 1965-1966 has begun. Station operation began in September 1965 and has been continuous for most of the period since. Previous reports have discussed the preparation, installation and operation of the site.

II. SCOPE

During the period covered by this report the station was operated for approximately two months. The station was then closed and part of the equipment was returned to the Geophysical Institute. Scaling of the data obtained at Allakaket was begun.

III. WORK DONE DURING THE REPORTING PERIOD

During January and February the station was in operation and collection of data was continued. Some difficulty was experienced with the diesel generating plant and some data were lost while parts were obtained and repairs were being made. The diesel fuel consumption remained at a high level as the winter temperatures were very low. On 3 March 1966 it was necessary to suspend operation of the site as funds were becoming so short it was feared that it would not be possible to return the equipment to the Geophysical Institute nor to perform the analysis phase if operation was continued. The site was closed; all equipment was stored or returned to the Geophysical Institute.

During the same period, preliminary scaling and analysis of the data was begun. D. K. Bailey, ITSA/ESSA, spent approximately two weeks at the Geophysical Institute, University of Alaska. During this visit, all of the data from Allakaket were examined. Scaling methods and techniques were discussed.

IV. ANALYSIS

Analysis of the data during this period was limited to examination of records.

V. FUTURE PLANS

The only barge suitable for removal of the remaining equipment at the site will reach Allakaket during mid-June. It is planned to prepare the equipment for shipment to College during early June. The equipment will then be placed on the barge. It will be necessary to transfer the equipment from the barge to the Alaska Railroad at Nenana, Alaska for the remainder of the trip. Mr. Bailey plans to return to the Geophysical Institute in June for additional cooperative examination of the data. It should be noted that the expenses of his visits are not charged against the contract.

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